

1. **Response to Rejection of Independent Claim 1**

Applicants' claim 1 is directed to an intelligent trolley module for use in an assist system. According to Applicants' independent claim 1, the intelligent trolley module includes a "plurality of wheels" and "an actuator driving at least one of the wheels in a horizontal direction." Thus, the wheels and actuator in Applicant's trolley system provide powered motion in a horizontal direction.

Kazerooni, however, belongs to a different class of devices – lifts for moving a load vertically. In Kazerooni, an end-effector 14 connects to an actuator 12 via a line 13. The end-effector 14 also connects to a load, and it includes a human interface subsystem 15 that allows an operator to move the load up or down. Thus, Kazerooni only provides powered motion in a vertical direction – it does not provide powered motion in a horizontal direction.

As Kazerooni only discloses a lift system that is not capable of horizontal movement, it lacks the "actuator driving at least one of the wheels in a horizontal direction" limitation of Applicants' Claim 1. In order to find this limitation, the Examiner relies on Anderson. The Examiner further asserts that "Kazerooni and Anderson et al are analogous are because they both concern assisted/automatic lifting technology for the manufacturing environment," and therefore there would be a motivation to combine these references. Applicants respectfully disagree.

Kazerooni relates to an assist system for lifting a load vertically. Anderson, however, "relates to manufacturing parts from flat material, and more particularly to manufacturing airplane floor panels from honeycomb sheets." (Anderson, col 1, lines 8-

10). Thus, Anderson does not concern "assisted/automatic lifting technology" as the Examiner asserts it does. Rather, Anderson relates to an automated manufacturing process. Therefore, there would be no incentive to combine the assist system of Kazerooni with the manufacturing process of Anderson.

In relying on Anderson, the Examiner makes specific reference to components 136, 204 and 210 in Anderson. In Anderson, the drive motor 136 is used to move a material handling and buffer storage cart 120 along tracks 126. (Anderson, col. 7, lines 5-13). Similarly, motors 204 and 210 are used for lateral and longitudinal movement respectively in this system. (Anderson, col. 7, line 66 – col. 8, line 17). Thus, the motors in Anderson that the Examiner relies upon are not even part of assist/automatic lifting technology.

In the Response to Argument section, the Examiner states "figures 8 and 9 of Kazerooni clearly illustrate a rail (72) with trolley and wheels (81). Although not explicit about the operation of the trolley, it is clear that the lift apparatus of Kazerooni would not work unless it could move in the horizontal direction as well as the vertical." Applicants first note that Kazerooni describes "trolley 81" and not wheels as used by the Examiner. Applicants further note that it is not necessary that lift devices move in the horizontal direction in order to serve their intended purpose.

For example, as illustrated by Figure 16 of Kazerooni, the lift device may be used to move boxes from a pallet to an adjacent conveyer belt. This can be done using the range of motion given by the line 13 pivoting around the actuator 12. To serve this application, the actuator 12 itself need not move horizontally along its supporting beam. Thus, even

Kazerooni itself shows lift devices being used for their intended purpose without moving horizontally on their support beams.

Applicants respectfully submit that as there is no motivation to combine Kazerooni with Anderson, the Examiner has failed to make a prima facie case of obviousness. Therefore, claim 1 is allowable, and dependent claims 2-4 and 6-11 are also allowable.

**2. Response to Rejection of Independent Claims 12 and 24**

Applicants' independent claim 12 is directed to an intelligent lift module for use in an assist device. Applicants' independent claim 24 is directed to an input device for use in an assist system. In rejecting these claims, the Examiner relies on the combination of Kazerooni and Anderson, although from the Office Action it is not entirely clear which elements of these claims the Examiner asserts are found in Kazerooni and which elements of these claims the Examiner asserts are found in Anderson. Regardless, there is no incentive to combine Kazerooni and Anderson, and therefore the Examiner has failed to make a prima facie case of obviousness.

As previously described, Kazerooni is directed toward a lift system for moving a load vertically. Anderson, however, describes a system for "manufacturing parts from flat material, and more particularly to manufacturing airplane floor panels from honeycomb sheets." (Anderson, col. 1, lines 8-10). Thus, while Kazerooni describes a lift system for independent use in a variety of different applications, Anderson describes an integrated workcell that includes a number of different stations that cooperatively operate in a manufacturing process.

As Kazerooni describes a lift system designed for independent operation, there would be no incentive to integrate that lift system into an automated manufacturing process. Therefore, and contrary to the Examiner's assertion, there would be no incentive to replace the hoist apparatus in Figure 14 of Anderson with the Kazerooni lift apparatus. As Anderson describes an automated manufacturing process, replacing the automated hoist apparatus of Anderson with lift apparatus of Kazerooni would then require that an operator perform that step in the manufacturing process, thereby decreasing the efficiency of the manufacturing process. Thus, there is no incentive to make this change.

As there is no motivation to combine Kazerooni and Anderson, Applicants respectfully submit that the Examiner has failed to make a prima facie case of obviousness. Therefore, independent Claims 12 and 24 are allowable. Additionally, dependent Claims 13-23 and 25-29 are also allowable.

## **5. Conclusion**

Applicants respectfully submit that all pending claims 1-4 and 6-29 are allowable. Independent claims 1, 12 and 24 are allowable for the reasons previously explained. Therefore, dependent claims 2-4, 6-11, 13-23 and 25-29 are also allowable. Applicants submit that the application is in condition for allowance and respectfully request notice to this effect.

If any questions or issues remain, the Examiner is invited to immediately contact the undersigned attorney, Brian Harris, at his direct dial number (312) 913-3303.

Respectfully submitted,

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## **Appendix A: Marked-up Claims**

1. (Once Amended) An intelligent trolley module for use in an assist system, comprising:

a plurality of wheels;

an actuator for driving at least one of the wheels in a horizontal direction;

a computational node controlling actuation of the motor driving the wheels of the trolley; and

a communication interface providing input/output communication with other intelligent modules.

24. (Once Amended) An input device for use in an assist system, comprising:

a handle for gripping; and

at least one proportional control;

wherein the input device is in communication with a multi-function hub, ~~having a physical interface for providing mechanical support within the assist system, and wherein~~ the proportional control when pressed provides a proportional output signal to the multi-function hub, and wherein the multi-function hub passes the output signal to the assist system.